

A study of global cirrus cloud morphology with AIRS cloud-clear radiances (CCRs)

Dong L. Wu, Goddard Space Flight Center

Jie Gong, University Space Research Association

Version 6 (V6) AIRS cloud-clear radiances (CCR) are used to derive cloud-induced radiance ($T_{cir} = T_b - CCR$) at the infrared frequencies of weighting functions peaked in the middle troposphere. The significantly improved V6 CCR product allows a more accurate estimation of the expected clear-sky radiance as if clouds are absent. In the case where strong cloud scattering is present, the CCR becomes unreliable, which is reflected by its estimated uncertainty, and interpolation is employed to replace this CCR value. We find that T_{cir} derived from this CCR method are much better than other methods and detect more clouds in the upper and lower troposphere as well as in the polar regions where cloud detection is particularly challenging. The cloud morphology derived from the V6 test month, as well as some artifacts, will be shown.